

# Harford County, Maryland

## Loch Raven Reservoir Total Maximum Daily Load (TMDL)

### for Bacteria, Mercury, Nutrients, and Sediment

The Loch Raven Reservoir Watershed, Total Maximum Daily Loads (TMDL) for bacteria (December 2009), mercury (August 2004), and nutrients and sediment (March 2007) were established by Maryland Department of Environment (MDE) and approved by the U.S. Environmental Protection Agency (EPA).

On December 30, 2014, MDE reissued the Phase I National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit to the County. The permit has several new requirements, including stringent stormwater management criteria, implementation of strategies to reduce litter and floatables, and development of restoration plans. Part IV.E.2.b of the NPDES MS4 permit requires the County to develop restoration plans to address stormwater wasteload allocations (SW-WLAs) for the waterbodies in the County that have EPA-approved TMDLs. Attachment B of the County's NPDES MS4 permit lists eight waterbodies in the County that have TMDLs for various impairments. Table 1 lists the waterbodies, type of TMDL, and the impairment.

**Table 1: EPA-Approved TMDLs in Harford County**

Type of TMDL	Watershed	Impairment
Local	Bynum Run	Sediment
	Swan Creek	Nutrients
	Loch Raven Reservoir (Non-Tidal)	Bacteria
	Loch Raven Reservoir	Mercury
	Loch Raven Reservoir	Nutrients and Sediment
Chesapeake Bay	Bush River Oligohaline	Nutrients and Sediment
	Gunpowder River Oligohaline	Nutrients and Sediment
	Chesapeake Bay Mainstem 1 Tidal Fresh	Nutrients and Sediment
	Chesapeake Bay Mainstem 2 Oligohaline	Nutrients and Sediment

The Loch Raven Reservoir Watershed is located in Maryland and includes a small contribution from Pennsylvania. The Maryland portion of the watershed is located almost entirely within the northern section of Baltimore County. Only 800 acres of agriculture and forest drain from Harford County into the 194,000 acres of the Loch Raven Reservoir Watershed.

According to MDE's TMDL Data Center, WLA search (referenced below) there is no SW-WLA for mercury and nitrogen, and 0% reduction for bacteria and sediment (Table 2). Therefore, no restoration plan is required for these impairments.

<http://www.mde.state.md.us/programs/Water/TMDL/DataCenter>.

**Table 2: Stormwater WLAs for Harford County MS4 in Loch Raven Reservoir**

Impairment	Reduction
Mercury	NA
Nitrogen	NA
Bacteria	0%
Sediment	0%
Phosphorus	15%

The 15% target load reduction for phosphorus equals approximately 6 lbs/yr. According to the *Accounting for Stormwater Wasteload Allocations and Impervious Acres Treated* (MDE, 2014), a load reduction of 0.44 lbs/yr can be achieved by planting 1 acre of trees following the minimum tree size and planting density. Therefore, a 14-acre tree planting could be implemented to achieve a 6 lbs/yr phosphorus reduction at an estimated cost of \$275,000.

This cost far outweighs the benefit to the Loch Raven TMDL considering the minor contribution from Harford County. The County will coordinate with Baltimore County and Harford County Soil Conservation District to identify potentially more cost effective restoration opportunities within the Loch Raven Reservoir watershed.

Harford County is concurrently developing a restoration plan for the County's portion of the Chesapeake Bay (CB1TF) Watershed TMDLs for nutrients and sediment. Implementation of that plan is a priority for Harford County.

Harford County's portion of the Loch Raven Watershed as described in the TMDL documents is agriculture and forest and should not include an allocation for the County's MS4. Part 1.B of the County's MS4 permit correctly defines the MS4 permit area. Outside of this permit, MDE has expressed a more expansive interpretation of the regulated permit area. The County expressly reserves its right to reduce the load reduction goals to the minimum required by law. In addition, the County expressly reserves the right to make future refinements upon new and additional information consistent with an adaptive management approach or based upon financial, operational or legal consideration that impact the implement.